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DELIVERING SOUND ADVICE

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ACOUSTICAL REPORT

PROPOSED NEW SCHOOL BUILDING

RISSALAH COLLEGE

Date: Thursday, 3 November 2022

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V1	04/04/2022	MJ	NK	Report version 1 available for issue
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Approved by	Nick Koikas M.A.A.S Principal Consultant
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ACOUSTICAL REPORT

PROPOSED NEW SCHOOL BUILDING

RISSALAH COLLEGE

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1.0 INTRODUCTION

Koikas Acoustics Pty Ltd was commissioned to prepare a noise impact assessment for Rissalah College seeking approval for the construction of a new classroom building at 55 Macdonald Street, Lakemba.

For this DA, the acoustical adequacy of the proposed design must be assessed in terms of standard planning guidelines issued by the Council in their Local Environment Plan (LEP), Development Control Plan (DCP), and other standard planning guidelines related to common sources of noise.

As per the Council guidelines and other standard planning instruments, Koikas Acoustics has determined the following acoustical components require an assessment at the current DA stage:

- Operational and mechanical plant noise emission from the proposed development to neighbouring dwellings.

This report presents the results and findings of an acoustical assessment of the subject proposal. In-principle acoustic treatments and noise control measures detailed within this report are deemed necessary for the development to comply with the nominated acoustical planning levels/project noise objectives.

2.0 THE PROPOSED DEVELOPMENT

The development is proposed to occupy the site at 55 Macdonald Street, Lakemba.

This location is situated in a primarily urban residential area classified as R4 'High-Density Residential' as per relevant land zoning maps included in the Canterbury Bankstown Council Local Environment Plan 2012 (Canterbury). Surrounding properties are also predominantly residential in classification, also located within R4 'High-Density Residential' Zoning.

The subject site and surrounding properties are identified in the aerial photograph in Figure 1.

Figure 1. Aerial photo of the subject site, monitoring location and surrounding area – Image from SixMaps

Prevailing ambient noise conditions on-site and in the local area are generally the result of typical environmental noise such as distant traffic, the existing school operations and localised domestic noise sources.

This acoustic report and any associated recommendations are based solely on the architectural design and drawings prepared by Crawford Architects (their Project No. 2209, dated 26/10/2022).

Any changes to the design may impact the findings of this report and associated noise control recommendations.

As per the architectural drawings, the proposed development will include a new two-storey building containing classrooms.

3.0 NOISE SURVEYS

3.1 UNATTENDED AMBIENT NOISE SURVEY

An unattended noise logging survey was conducted between 23 and 29 March 2022. The microphone was placed within a tree at the rear of 55 Macdonald Street, Lakemba at approximately 1.5 metres above the natural ground level.

A Type 2 Convergence Instruments Noise Sentry noise logger was used for this noise survey. The instrument was set up to measure sound pressure levels as 'A' frequency weighting and 'Fast' time response. Noise levels were stored within the logger memory at 15 minutes intervals during the quarter-hour.

A NATA-calibrated and certified Larson Davis CAL200 precision acoustic calibrator was used to field calibrate the sound level meter before and after the noise survey. No system drift was observed for this sound level meter.

BOM weather records for the nearest available weather station indicate that inclement weather conditions may have impacted the noise survey. Noise data from affected periods throughout the survey were removed following standard requirements of the NSW Environmental Protection Authority (EPA). BOM rainfall data is attached as **Appendix A**.

A summary of the noise survey data is presented below.

Table 1. Summary of noise logger results [dB]

Location	Period, T [1]	Ambient noise level L_{Aeq}	Rating background level L_{A90}
55 Macdonald Street	Day	48	37
	Evening	50	37
	Night	39	33

Notes

1. The **NSW EPA Noise Policy for Industry (NPfI)** refers to:
   Daytime: 7 am – 6 pm Monday to Saturday and 8 am to 6 pm Sunday and public holidays.
   Evening: 6 pm – 10 pm Monday to Sunday
   Night: 10 pm - 7 am Monday to Saturday and 10 pm to 8 am Sunday and public holidays.
2. The **EPA/RMS/NSW DoP** refers to:
   Daytime: 7 am – 10 pm seven days per week.
   Night: 10 pm - 7 am seven days per week

Daily logger graphs are attached in **Appendix B**.

3.2 ATTENDED NOISE SURVEY

Koikas Acoustics conducted attended noise measurements of students moving between classes to quantify the noise level and spectral levels associated with this noise source.

Noise level measurements were taken with a NATA-calibrated Type 1 NTi XL2 sound level meter. The instrument was set up to measure sound pressure levels as 'A' frequency weighting and 'Fast' time response.

Sound level measurements were taken for durations deemed sufficient to represent the underlying ambient and background noise environment without the influence of extraneous noise or noise from the subject's development.

The sound level meter microphone was placed 1.5 metres above the natural ground level.

The instrument was field calibrated before and after taking measurements. No system drift was observed.

A summary of the noise survey results is provided in Table 1.

Table 2. Summary of measured noise levels [dB]

Location/Description	Date	Measurement period	L_{Aeq}
Rissalah College Students moving between classrooms	30.03.2022	11:55 am – 12:05 pm	73

4.0 ACOUSTIC REQUIREMENTS

4.1 EPA NOISE POLICY FOR INDUSTRY

Noise emission design targets have been referenced from the *NSW Environmental Protection Authority (EPA) Noise Policy for Industry (NPfI)*.

The NPfI is designed to assess environmental noise impacts associated with scheduled activities prescribed within the Protection of the *Environment Operations Act 1997*, Schedule 1. It is also used as a reference tool for establishing suitable planning levels for noise generated by mechanical plant and equipment and noise emission from commercial operations.

For residential receivers, the guideline applies limits on the short-term intrusive nature of a noise or noise-generating development (project intrusive noise level), as well as applying an upper limit on cumulative industrial noise emissions from all surrounding development/industry (project amenity noise level).

The most stringent of the project intrusive noise level and project amenity noise level is applied as the **project noise trigger level (PNTL)**. To determine which of the intrusive and amenity noise criteria is more stringent, the underlying noise metrics must be the same.

As the intrusive noise level is defined in terms of an $L_{Aeq,\ 15\ minutes}$ and the amenity noise level is defined in terms of an $L_{Aeq,\ Period}$, a +3 dB correction is applied to the project amenity noise level to equate the $L_{Aeq,\ Period}$ to $L_{Aeq,\ 15\ minutes}$.

Where noise is measured or predicted below the project noise trigger level, the noise outcome is deemed acceptable. Above the project noise trigger level, management responses such as applying reasonable and feasible noise mitigation measures are to be recommended, along with assessing any residual noise impacts once noise mitigation has been considered.

The policy is designed in such a way that the assessing authority would consider the project noise trigger levels, reasonable and feasible mitigation measures, and any residual noise impacts when deciding on acceptable noise outcomes.

The site-specific project noise trigger levels need only be considered for the hours under which the noise or activity occurs, which is limited to daytime hours.

Table 3. NPfI planning levels – $L_{Aeq,\ 15\ minutes}$ [dB]								
Period, T (Note 1)	**Intrusive**		**Amenity**					**Project noise trigger level**
	RBL	**RBL + 5**	**Area classification**	**Recommended amenity noise level**	**High traffic area**	**[2]Project amenity noise level**	**+3dB correction**	
Day	37	42	Suburban	55	No	50	53	42
Notes: 1. **EPA** defines the following periods: **Day**: 7 am to 6 pm Mon to Sat and 8 am to 6 pm Sun and public holidays, **Evening**: 6 pm to 10 pm Mon to Sun, **Night**: 10 pm to 7 am Mon to Sat and 10 pm to 8 am Sun and public holidays. 2. Project noise amenity level = recommended noise amenity level – 5 dB, except where specific circumstances are met, such as high traffic.								

4.2 STATE ENVIRONMENTAL PLANNING POLICY (TRANSPORT AND INFRASTRUCTURE) 2021

The relevant controls as outlined in the State Environmental Planning Policy (Transport And Infrastructure) 2021 are shown below. Hereafter, this standard is referred to as SEPP.

3.21 General conditions of complying development certificates

Note—

The *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations (Noise Control) Regulation 2017* contain provisions relating to noise.

6 Noise

A new building or (if the development is an alteration or addition to an existing building for the purpose of changing its use) an existing building that is to be used for the purpose of a school or school-based child care must be designed so as not to emit noise exceeding an LAeq of 5 dB(A) above background noise when measured at any lot boundary.

Figures 2-3. Noise conditions – Image from SEPP (Transport and Infrastructure) 2021

The Protection of the Environment Operation (Noise Control) 2017 Regulation 2017, refers to air-conditioning condenser units placed on residential premises during nighttime periods. This is not relevant in this case and has therefore not been referred to in this report.

4.1 OFFENSIVE NOISE (POEO ACT 1997 DEFINITION)

In the definitions of the *Protection of the Environment Operations Act 1997*, 'offensive noise' means noise:

(a) *that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:*

(i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or

(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or

(b) *that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.*

5.0 OPERATIONAL NOISE ASSESSMENT

5.1 ASSESSMENT SCENARIOS

The following design scenarios are assessed. Assumptions included in the design are also noted for reference.

Table 4. Design scenarios and assumptions		
Scenario	**Description**	**Design assumptions**
1	During Class	All rooms operate at maximum capacity whilst all students are in the classrooms. AC operating at maximum capacity
2	Between Class	Students move between classrooms in the proposed classroom building and between the proposed classroom building and the main school campus. AC operating at maximum capacity

5.2 SOURCE NOISE LEVELS

Noise data used in the assessment is sourced from:

- Measurements were taken at the existing premises.
- Database noise levels (measurements conducted at similar premises).
- Published noise data from other reference material such as research papers, acoustical texts etc.

All measurements were taken with a NATA-certified and calibrated NTi Audio XL2 sound level meter. Additional field calibration checks were performed with a Larson Davis CAL200 calibrator with no system drift recorded.

The assessment considers the cumulative impact of the major noise-generating areas of the new classroom building with the greatest potential to impact the adjacent residential development.

A summary of the base noise data as taken from measurements, database noise levels and/or other reference material is included below.

Table 5. Source Noise Levels		
Noise Source	**Descriptor**	**Noise level [dBA]**
Internal classroom noise during a lesson - 1 x teacher speaker with a raised vocal effort - 8 x students speaking with a normal vocal effort	L_{Aeq}	77
Internal bathroom noise - 10 students speaking with a normal vocal effort in a reverberant environment	L_{Aeq}	74
Students moving between classrooms - Corrected to 5 minutes in a 15-minute period	L_{Aeq}	68
AC Condenser Unit	Lp at 1 m	58

The design of the mechanical systems is not typically completed at the DA stage and thus a detailed assessment of noise emission cannot yet be completed. A detailed review of mechanical noise emissions from the development may need to be completed at the construction certificate stage.

5.3 CALCULATED RECEIVER LEVELS

Operational noise levels have been predicted to nearby residential receivers by way of preparing an acoustic model and conducting point-to-point calculations based on standard sound propagation algorithms.

Reference should also be made to additional noise control recommendations included within Section 5.4 of this report, which also govern the calculated receiver noise levels.

Due to the size of the development, several potentially affected receiver locations must be assessed in terms of their respective noise exposure from the mechanical plant and equipment associated with the development. The most noise-sensitive receiver locations are summarised below.

Table 6. Assessment locations		
ID	**Receiver type and address**	**Assessment location**
R1	Residential / 52 Hampden Road	Upper floor level
R2	Residential / 50 Hampden Road	Most affected boundary
R3	Residential / 49 Macdonald Street	Most affected boundary
R4	Residential / 49 Macdonald Street	Upper floor level
R5	Residential / 53 Macdonald Street	Upper floor level
R6	Residential / 53 Macdonald Street	Upper floor level
R7	Residential / 53 Macdonald Street	Upper floor level
R8	Residential / 48 Macdonald Street	Upper floor level
R9	Residential / 50 Macdonald Street	Upper floor level
R10	Residential / 52 Macdonald Street	Upper floor level
R11	Residential / 57 Macdonald Street	Upper floor level
R12	Residential / 57 Macdonald Street	Upper floor level
R13	Residential / 57 Macdonald Street	Upper floor level
R14	Residential / 59 Macdonald Street	Upper floor level
R15	Residential / 59 Macdonald Street	Most affected boundary

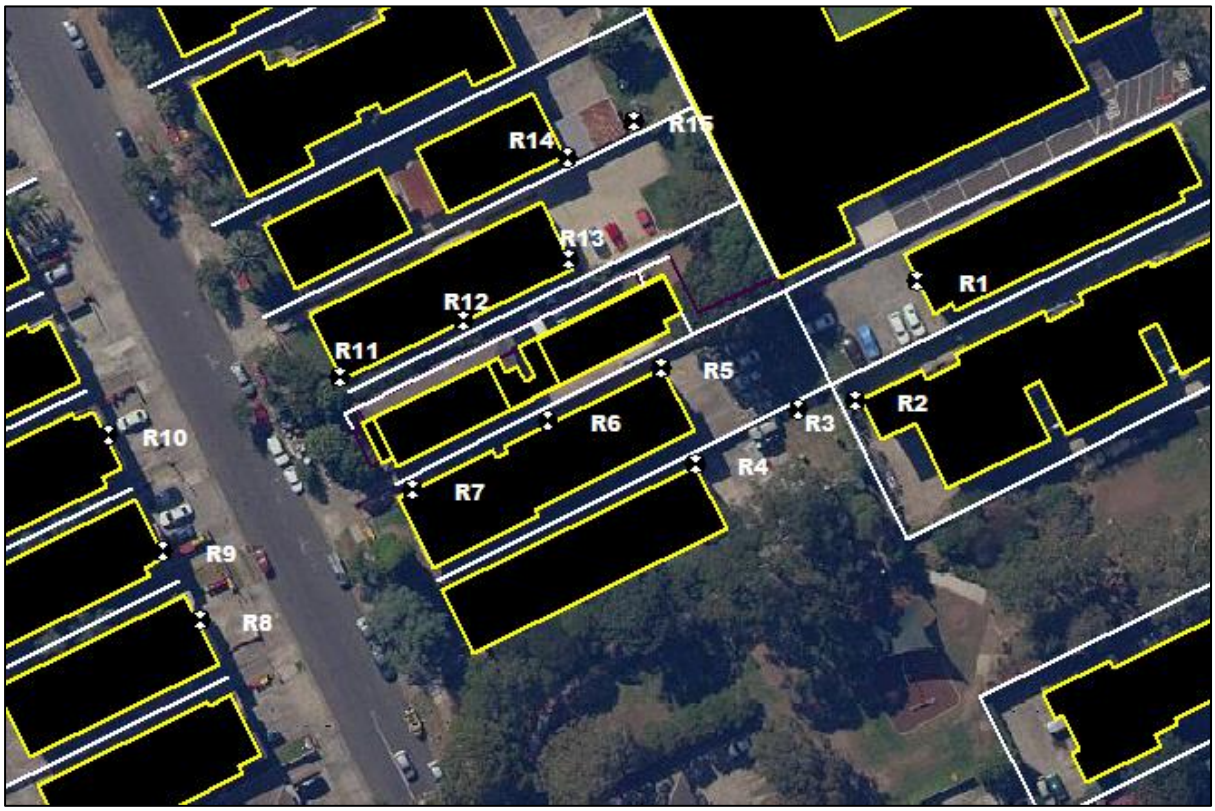


Figure 4. Receiver locations – Image from Koikas Acoustics

Predicted operational noise levels are as follows:

Table 7. Calculated receiver noise levels [dB] – Scenario 1			
Receiver location	**Calculated Receiver Noise Levels**	**Noise Criterion**	**Compliance Achieved?**
R1	28	***42***	**Yes**
R2	28		**Yes**
R3	25		**Yes**
R4	24		**Yes**
R5	41		**Yes**
R6	41		**Yes**
R7	39		**Yes**
R8	27		**Yes**
R9	24		**Yes**
R10	20		**Yes**
R11	29		**Yes**
R12	30		**Yes**
R13	30		**Yes**
R14	26		**Yes**
R15	27		**Yes**

Table 8. Calculated receiver noise levels [dB] – Scenario 2			
Receiver location	**Calculated Receiver Noise Levels**	**Noise Criterion**	**Compliance Achieved?**
R1	41	***42***	**Yes**
R2	37		**Yes**
R3	34		**Yes**
R4	33		**Yes**
R5	42		**Yes**
R6	38		**Yes**
R7	40		**Yes**
R8	40		**Yes**
R9	41		**Yes**
R10	37		**Yes**
R11	38		**Yes**
R12	42		**Yes**
R13	42		**Yes**
R14	42		**Yes**
R15	39		**Yes**

Operational noise levels have been assessed to comply with the limiting NPfI and SEPP criteria, pending the inclusion of noise control measures as detailed in the following section of this report. Additionally, provided that the recommendations as outlined in Section 5.4 of this report are implemented correctly, the use of the site at 55 Macdonald Street, Lakemba as school classrooms should not give rise to offensive noise, as per the POEO 1997 definition, as noise levels have been calculated to be compliant with the relevant SEPP and EPA NPfI noise controls.

5.4 RECOMMENDATIONS

- The AC condenser unit should be placed at ground level along the rear façade of the proposed classroom building facing back toward the existing school.
- The AC condenser unit should have a sound pressure level that does not exceed 58 dB at 1-metre.
- Alternate fans and AC condensers to those nominated in this report may be used provided their performance is certified by a mechanical and acoustical engineer.
- All boundary fences except for a section along the southern boundary (*detailed below*), should be a minimum of 1.8 m in height and constructed out of the following materials:
    - Double-lapped 15mm thick timber fence palings offset so that there are no air gaps. This equates to a total barrier thickness of 30 mm; OR
    - 15 mm compressed fibre cement panels with no air gaps at the joins; OR
    - 6mm compressed fibre cement panels on either side of a 50mm steel frame with fibreglass insulation batts (14kg/m;) to the cavity;
- To shield noise emissions from students moving between classrooms, the walkway between the existing college should be covered with a metal roof-clad awning, 2.5 m above ground level.

  The extent of the cover should extend to the boundary fence on the southern side, which should also be raised to 2.5 m in height.

  Additionally, internal barriers within the site of 2.5 m in height will also be required.

  See Figures 5-7 below for the extent of the barriers and awning required.
- The recommended metal roof-clad awning is to have its underside lined with acoustic absorption achieving an NRC not less than 0.7. Pre-fabricated panels such as the Supawood Perforated Panel or similar are recommended.
- The obscure glass windows along the northwestern façade should be a minimum of 6.38 mm laminated glass.
- All other windows should be a minimum of 4 mm toughened glass.

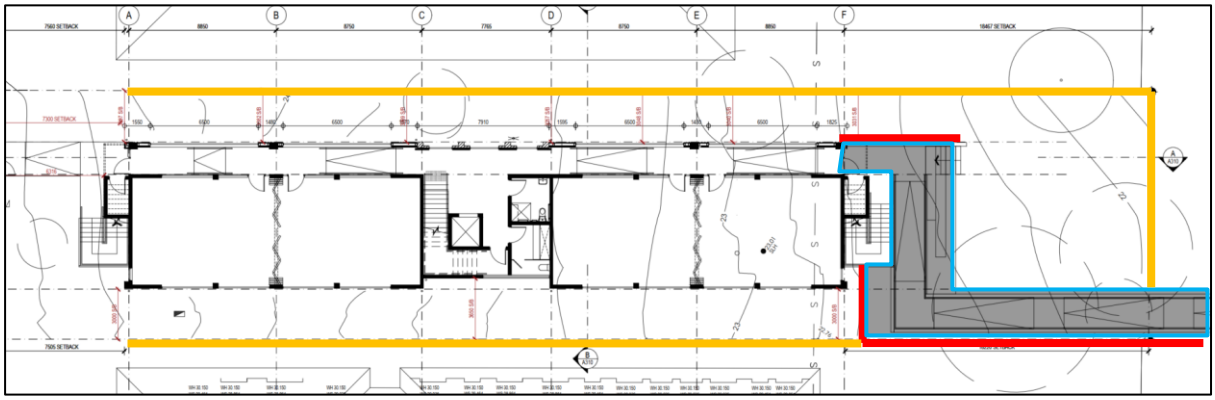
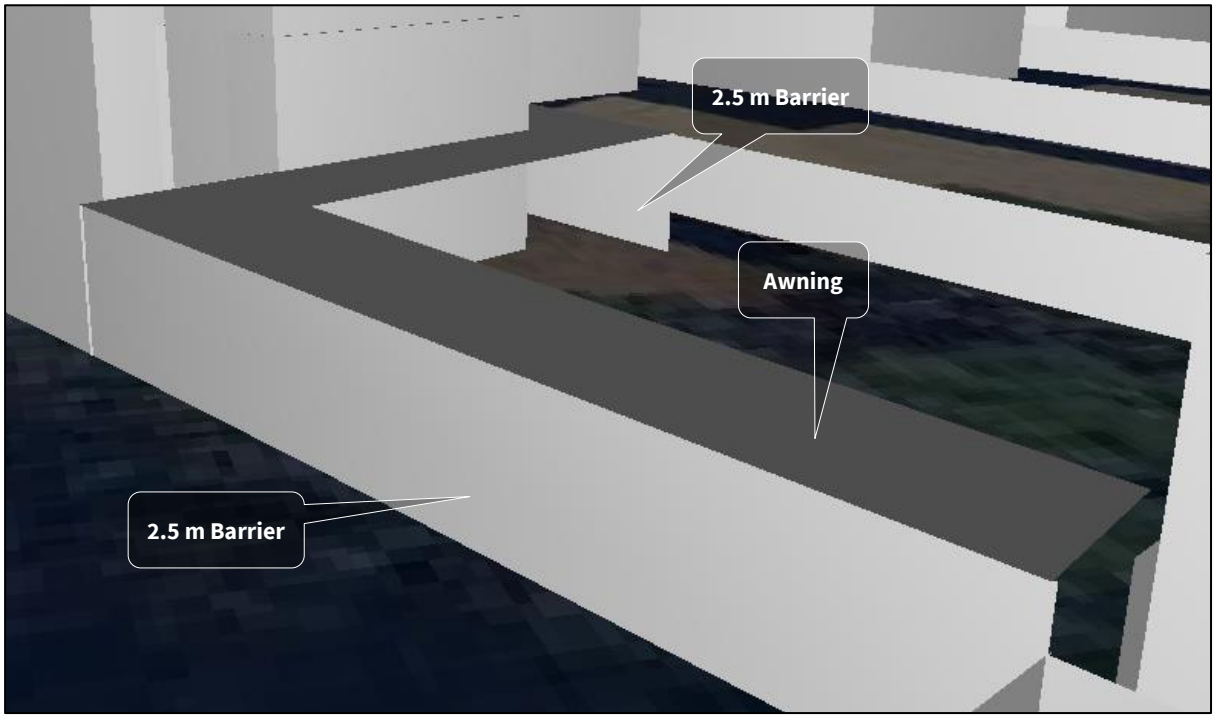


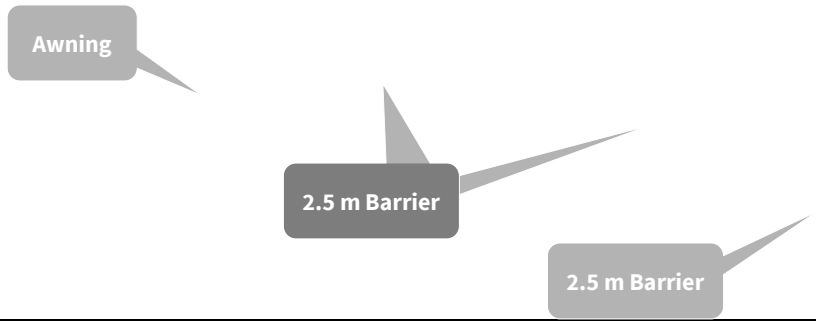
Figure 5. The extent of recommended boundary fences and coverings – Image from Crawford Architects

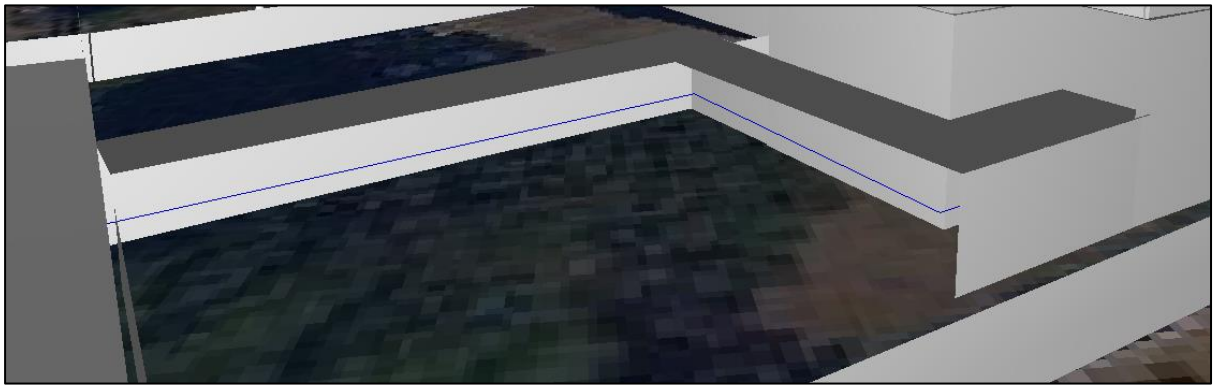
= 1.8 m boundary fence

= 2.5 m fences/barriers

= Metal-clad awning covering







Figures 6-7. 3D-Rendering of recommended fences and awnings – Image from Koikas Acoustics

6.0 CONCLUSION

Koikas Acoustics was requested to conduct an acoustical assessment and prepare a report for the proposed new classroom building at 55 Macdonald Street, Lakemba. The acoustical report is to accompany a development application to be submitted to Canterbury Bankstown Council.

The assessment considers potential noise impacts on surrounding residents such that acceptable acoustic amenity is maintained.

Acoustic planning levels have been referenced from current SEPP and EPA acoustic planning guidelines and requirements.

The included recommendations are based on designs prepared by Crawford Architects.

The conclusions reached in this acoustical report should assist Council in making their determination of the proposal. A further detailed acoustical report may be required for the CC submission should the building design be amended, or as required by Council.

Of the assessed components of noise, the following conclusions have been reached:

- Operational noise emissions are calculated to be within the acoustic design standards.

In our professional opinion, there is sufficient scope within the proposed building design to achieve the applied acoustic planning guidelines.

APPENDIX A

APPENDIX A

APPENDIX A

Daily Rainfall (millimetres)

CANTERBURY RACECOURSE AWS

Station Number: 066194 · State: NSW · Opened: 1995 · Status: Open · Latitude: 33.91°S · Longitude: 151.11°E · Elevation: 3 m

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	*0*	*0*	*23.0*									
2nd	*0*	*9.6*	*30.8*									
3rd	*0*	*3.0*	*70.8*									
4th	*0*	*0*	*32.2*									
5th	*2.8*	*9.6*	*8.2*									
6th	*18.6*	*1.2*	*27.0*									
7th	*0.2*	*8.0*	*50.8*									
8th	*15.8*	*10.2*	*125.2*									
9th	*0.8*	*1.8*	*52.2*									
10th	*0.2*	*0*	*0*									
11th	*0.6*	*6.2*	*0*									
12th	*0*	*1.2*	*0.4*									
13th	*13.8*	*18.0*	*0*									
14th	*7.8*	*0*	*7.6*									
15th	*0.4*	*0*	*0.6*									
16th	*0.2*	*0*	*13.4*									
17th	*0*	*0*	*6.6*									
18th	*0*	*1.2*	*0*									
19th	*7.2*	*1.6*	*33.8*									
20th	*2.0*	*0.2*	*1.2*									
21st	*0.6*	*0*	*0*									
22nd	*3.0*	*5.0*	*0*									
23rd	*4.8*	*119.4*	*0*									
24th	*1.6*	34.4	*2.6*									
25th	*0.2*	*14.2*	*11.6*									
26th	*0*	*49.8*	*25.8*									
27th	*0*	*36.2*	*21.2*									
28th	*0*	*4.6*	*12.6*									
29th	*0*		*22.4*									
30th	*0*		*29.2*									
31st	*0*		*17.4*									
Highest daily	*18.6*	*119.4*	*125.2*									
Monthly Total	*80.6*	335.4	*626.6*									

↓ This day is part of an accumulated total
Quality control: 12.3 Done & acceptable, *12.3* Not completed or unknown

Product code: IDCJAC0009 reference: 84280812

Australian Government
Bureau of Meteorology

Daily Rainfall (millimetres)

CANTERBURY RACECOURSE AWS

Station Number: 066194 · State: NSW · Opened: 1995 · Status: Open · Latitude: 33.91°S · Longitude: 151.11°E · Elevation: 3 m

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	78.1	123.6	117.3	94.8	74.1	105.5	56.4	62.9	48.5	63.9	73.8	65.1
Median	59.8	108.6	75.2	65.0	43.4	77.0	49.4	40.9	46.8	37.0	56.6	66.4
Highest daily	*128.0*	*189.2*	*125.2*	*123.0*	*84.8*	*110.0*	*88.6*	*121.0*	*70.2*	*121.2*	*64.6*	*67.0*
Date of highest daily	31st 2001	10th 2020	8th 2022	21st 2015	14th 2003	5th 2016	22nd 2011	31st 1996	7th 2006	15th 2014	5th 2010	11th 2002

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml.

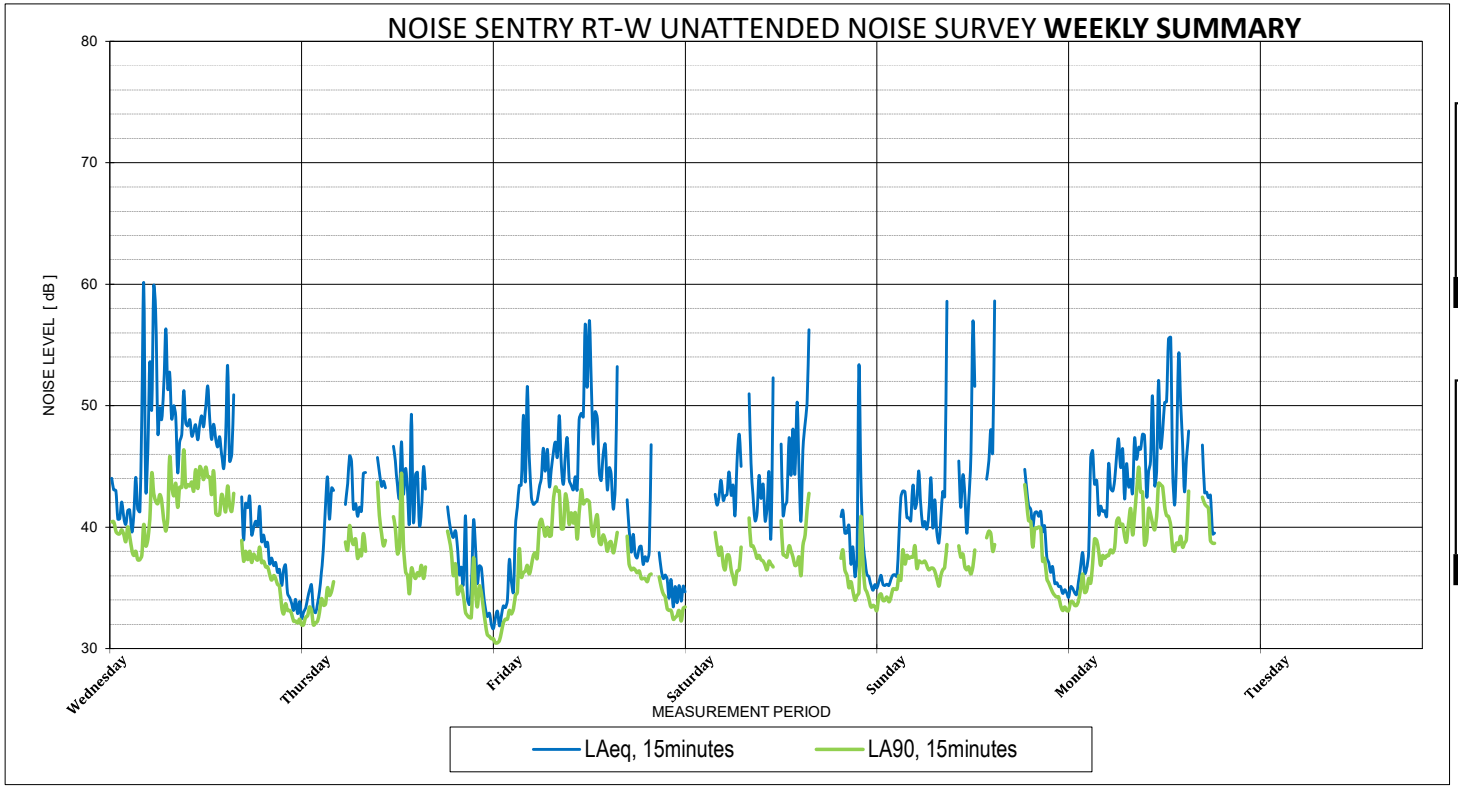
Product code: IDCJAC0009 reference: 84280812 Created on Thu 31 Mar 2022 11:39:05 AM AEDT

APPENDIX B

APPENDIX B

APPENDIX B

WEEKLY SUMMARY **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **PERIOD:** 23rd March to the 29th March 2022



SUMMARY OF AMBIENT NOISE LEVELS

	LA90 Daytime	*LA90* Evening	*LA90* Night-time
Day 1	39	37	38
Day 2	36	36	32
Day 3	37	36	31
Day 4	36	37	33
Day 5	36	38	34
Day 6	38	39	33
Day 7	N/A	N/A	N/A
RBL	**37**	**37**	**33**

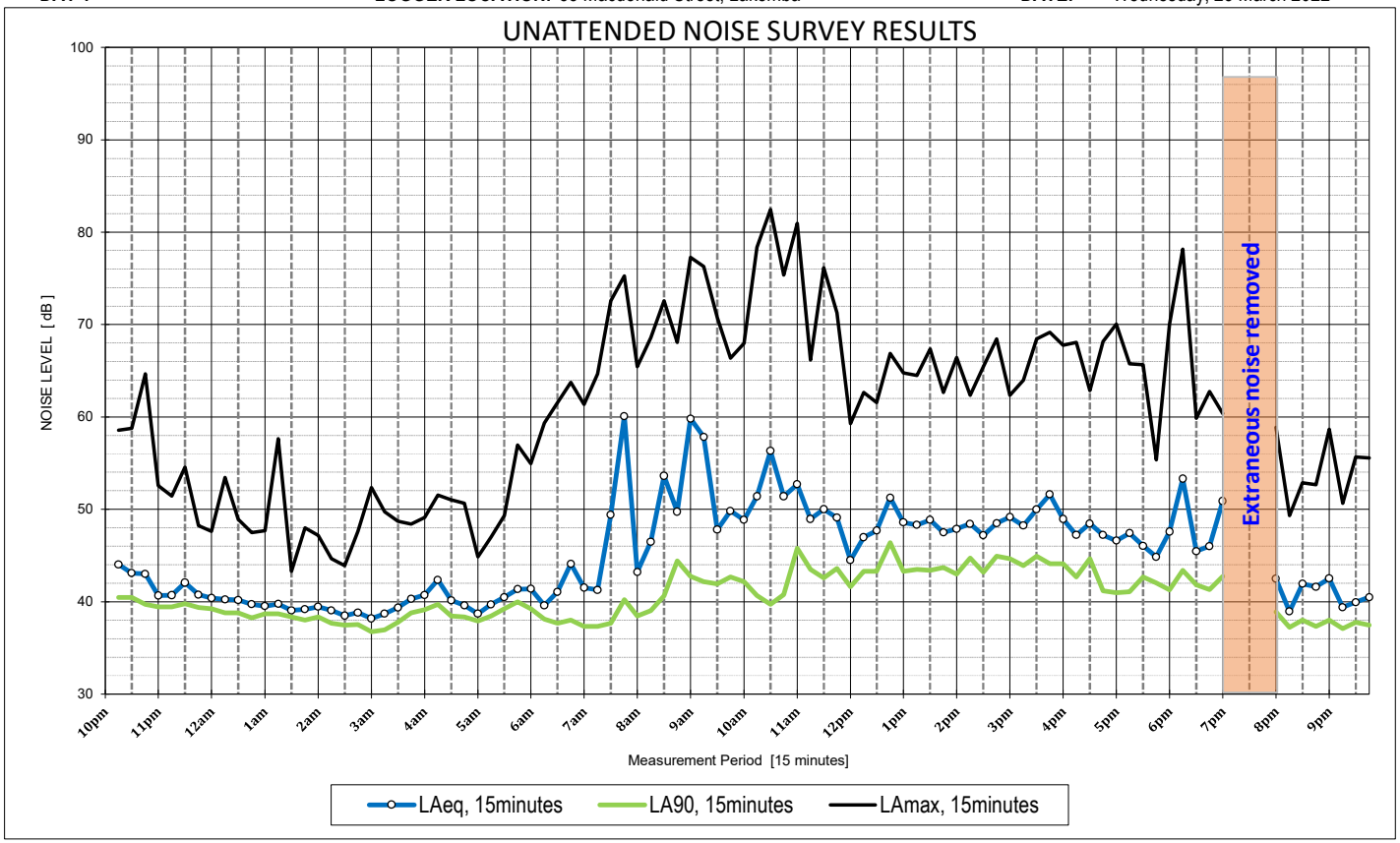
	LAeq Daytime	*LAeq* Evening	*LAeq* Night-time
Day 1	51	46	41
Day 2	44	43	37
Day 3	48	45	37
Day 4	45	51	38
Day 5	48	56	41
Day 6	48	44	40
Day 7	N/A	0	N/A
Average	**48**	**50**	**39**

SUMMARY OF TRAFFIC & MISC. NOISE LEVELS

LAeq 15 hrs	0700-2200	47	dB
LAeq 9 hrs	2200-0700	39	dB
Max LAeq 1 hr	0700-2200	49	dB
Max LAeq 1 hr	2200-0700	40	dB

* *Sundays and Public Holidays the hours change to 0800*

DAY 1 **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **DATE:** Wednesday, 23 March 2022



AMBIENT BACKGROUND NOISE METRICS

Descriptor	Period	Level	Units
LA90 Daytime	0700-1800	39	dB
LA90 Evening	1800-2200	37	dB
LA90 Night-time	2200-0700	38	dB

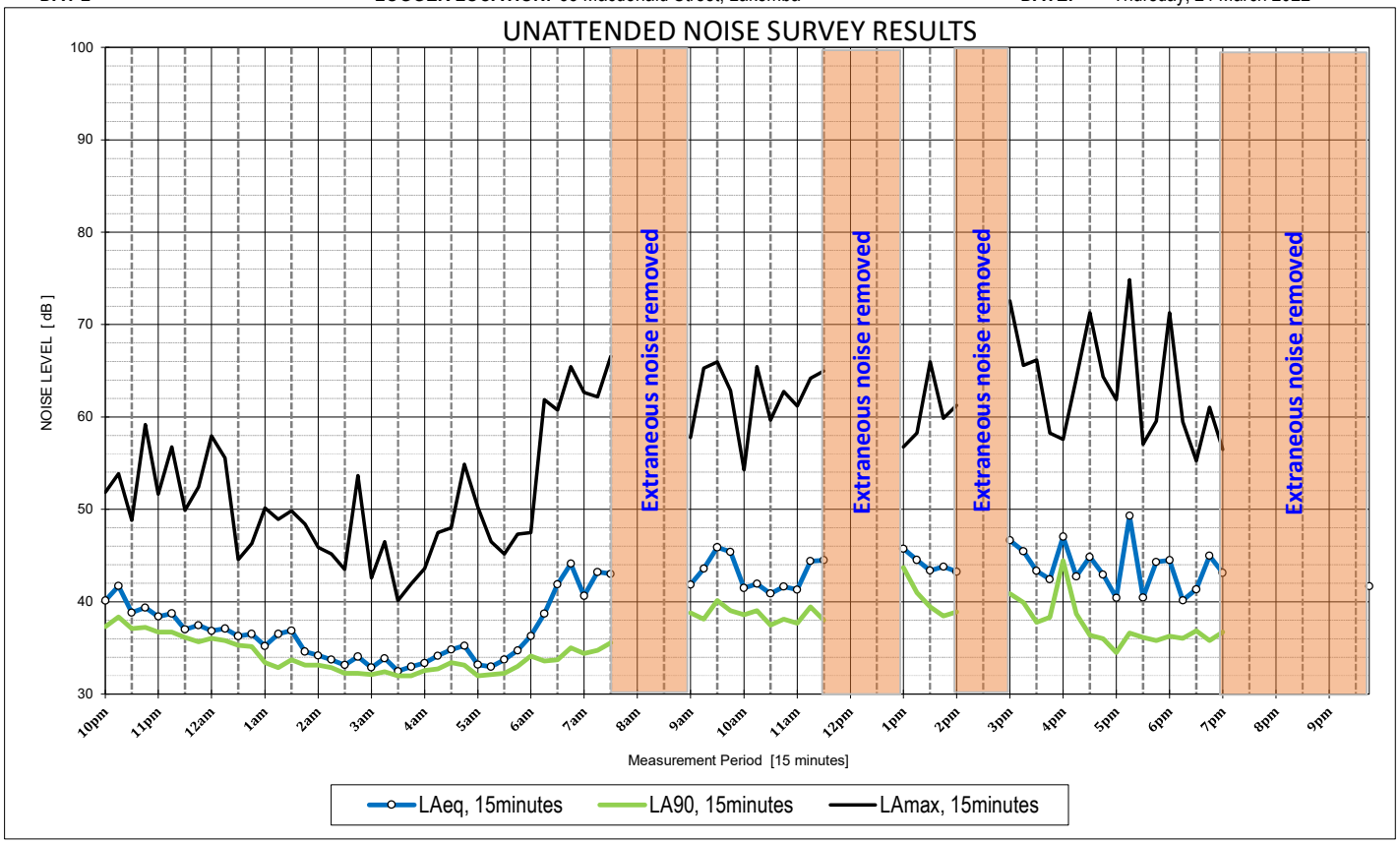
AMBIENT NOISE METRICS

LAeq Daytime	0700-1800	51	dB
LAeq Evening	1800-2200	46	dB
LAeq Night-time	2200-0700	41	dB

TRAFFIC & MISC. NOISE METRICS

LAeq 15 hours	0700-2200	51	dB
LAeq 9 hours	2200-0700	41	dB
Max LAeq 1 hour	0700-2200	55	dB
Max LAeq 1 hour	2200-0700	42	dB

DAY 2 **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **DATE:** Thursday, 24 March 2022



AMBIENT BACKGROUND NOISE METRICS

Descriptor	Period	Level	Units
LA90 Daytime	0700-1800	36	dB
LA90 Evening	1800-2200	36	dB
LA90 Night-time	2200-0700	32	dB

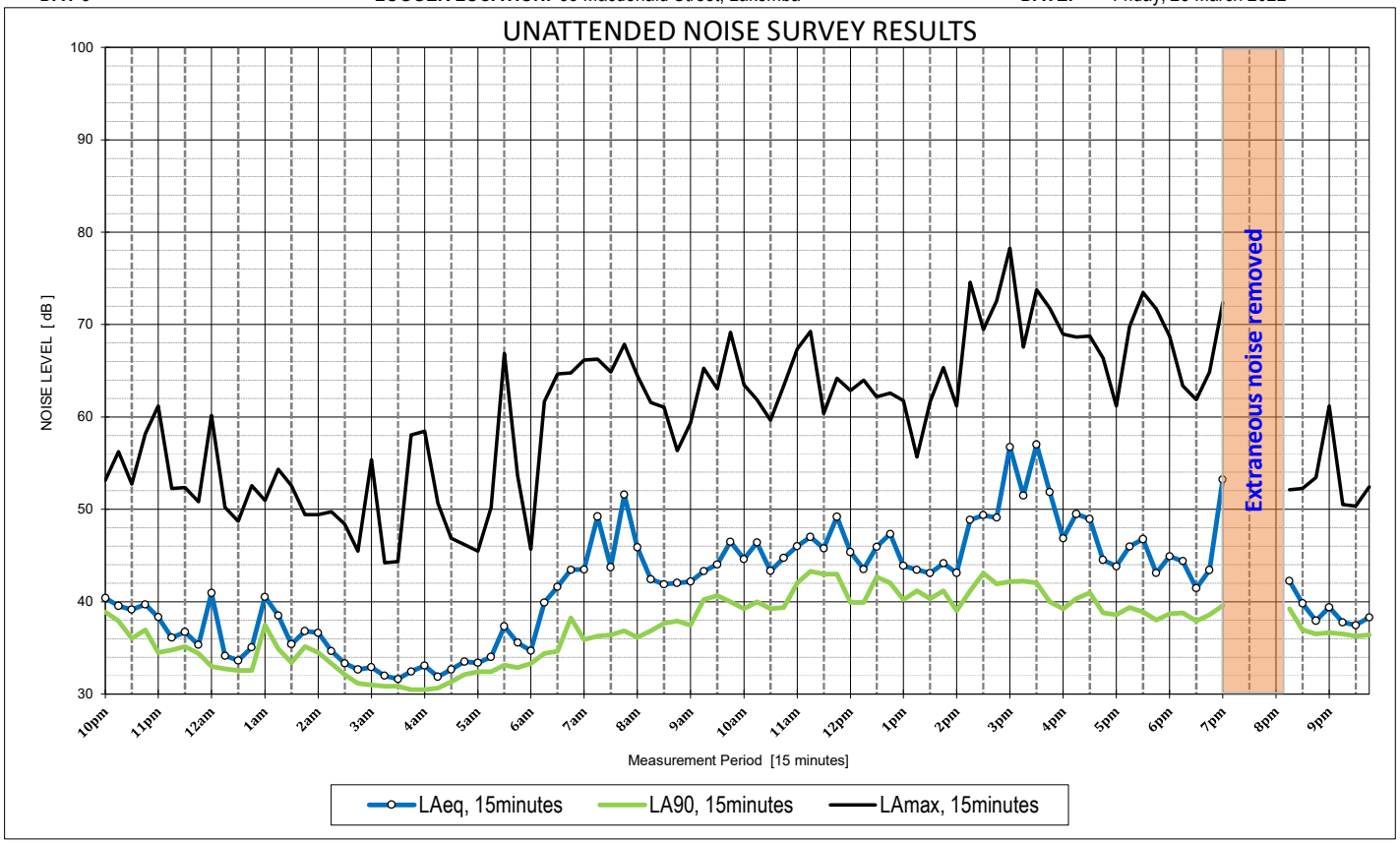
AMBIENT NOISE METRICS

LAeq Daytime	0700-1800	44	dB
LAeq Evening	1800-2200	43	dB
LAeq Night-time	2200-0700	37	dB

TRAFFIC & MISC. NOISE METRICS

LAeq 15 hours	0700-2200	44	dB
LAeq 9 hours	2200-0700	37	dB
Max LAeq 1 hour	0700-2200	46	dB
Max LAeq 1 hour	2200-0700	39	dB

DAY 3 **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **DATE:** Friday, 25 March 2022



AMBIENT BACKGROUND NOISE METRICS

Descriptor	Period	Level	Units
LA90 Daytime	0700-1800	37	dB
LA90 Evening	1800-2200	36	dB
LA90 Night-time	2200-0700	31	dB

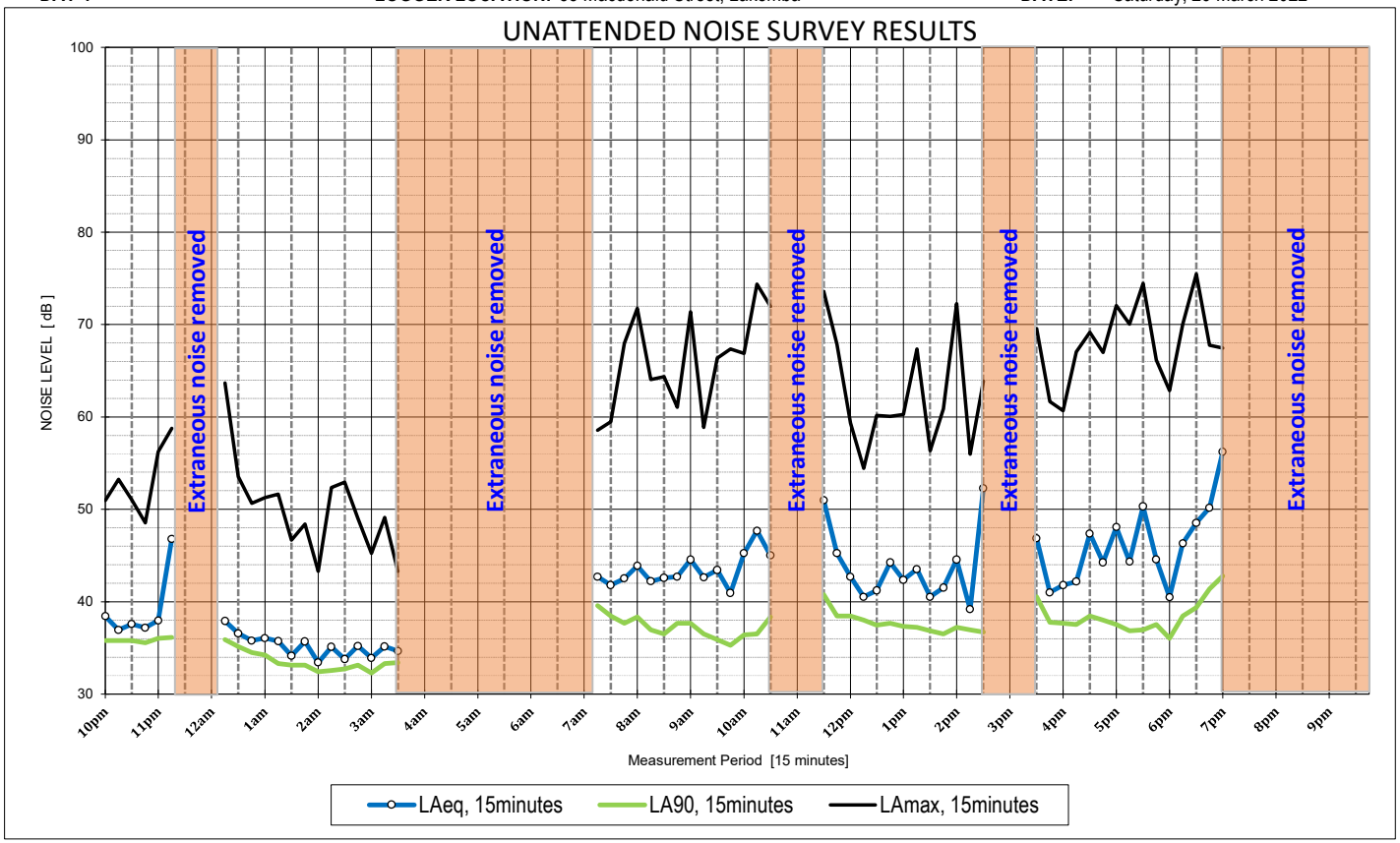
AMBIENT NOISE METRICS

LAeq Daytime	0700-1800	48	dB
LAeq Evening	1800-2200	45	dB
LAeq Night-time	2200-0700	37	dB

TRAFFIC & MISC. NOISE METRICS

LAeq 15 hours	0700-2200	48	dB
LAeq 9 hours	2200-0700	37	dB
Max LAeq 1 hour	0700-2200	51	dB
Max LAeq 1 hour	2200-0700	39	dB

DAY 4 **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **DATE:** Saturday, 26 March 2022



AMBIENT BACKGROUND NOISE METRICS

Descriptor	Period	Level	Units
LA90 Daytime	0700-1800	36	dB
LA90 Evening	1800-2200	37	dB
LA90 Night-time	2200-0700	33	dB

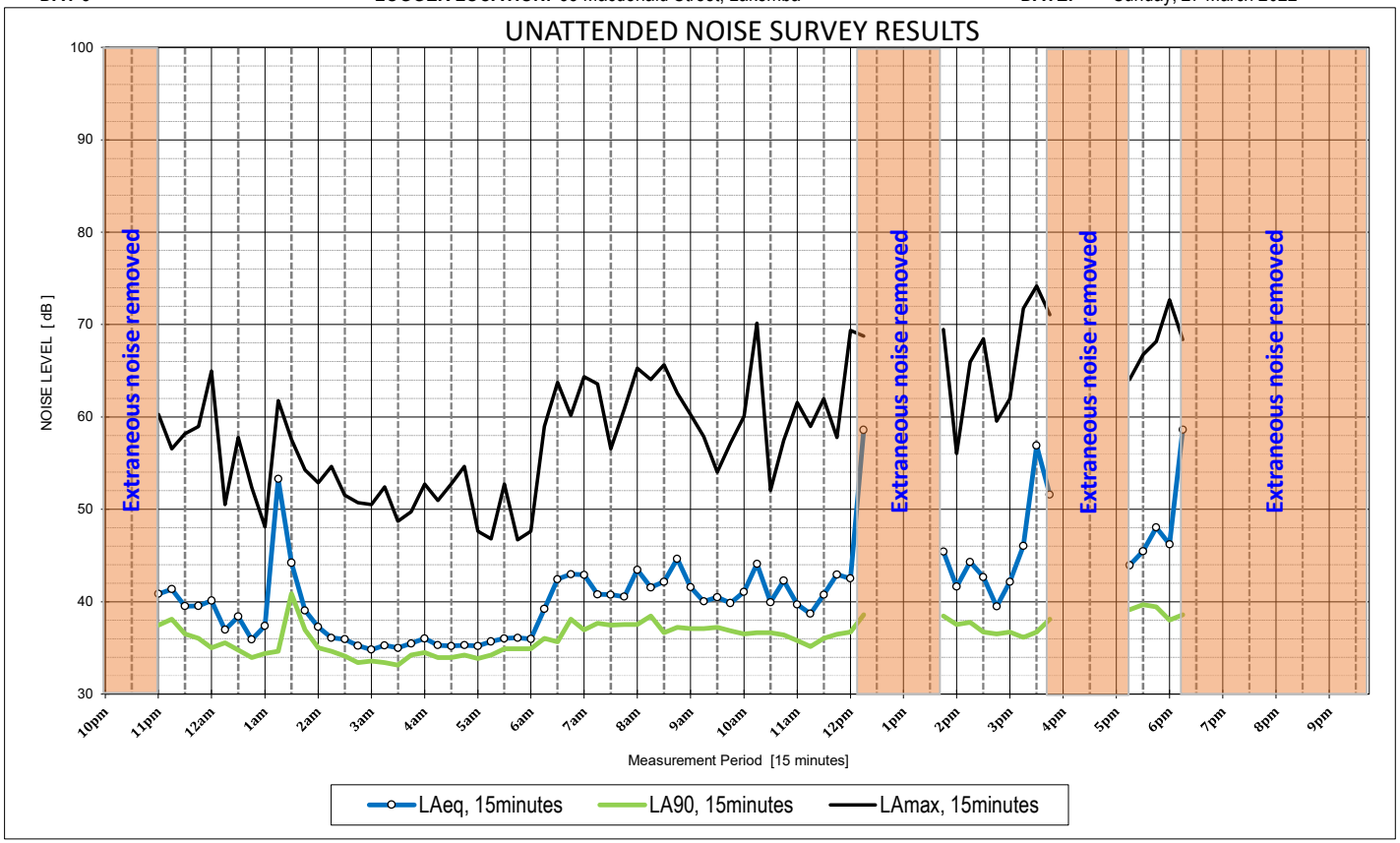
AMBIENT NOISE METRICS

LAeq Daytime	0700-1800	45	dB
LAeq Evening	1800-2200	51	dB
LAeq Night-time	2200-0700	38	dB

TRAFFIC & MISC. NOISE METRICS

LAeq 15 hours	0700-2200	47	dB
LAeq 9 hours	2200-0700	38	dB
Max LAeq 1 hour	0700-2200	48	dB
Max LAeq 1 hour	2200-0700	38	dB

DAY 5 **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **DATE:** Sunday, 27 March 2022



AMBIENT BACKGROUND NOISE METRICS

Descriptor	Period	Level	Units
LA90 Daytime	0800-1800	36	dB
LA90 Evening	1800-2200	38	dB
LA90 Night-time	2200-0800	34	dB

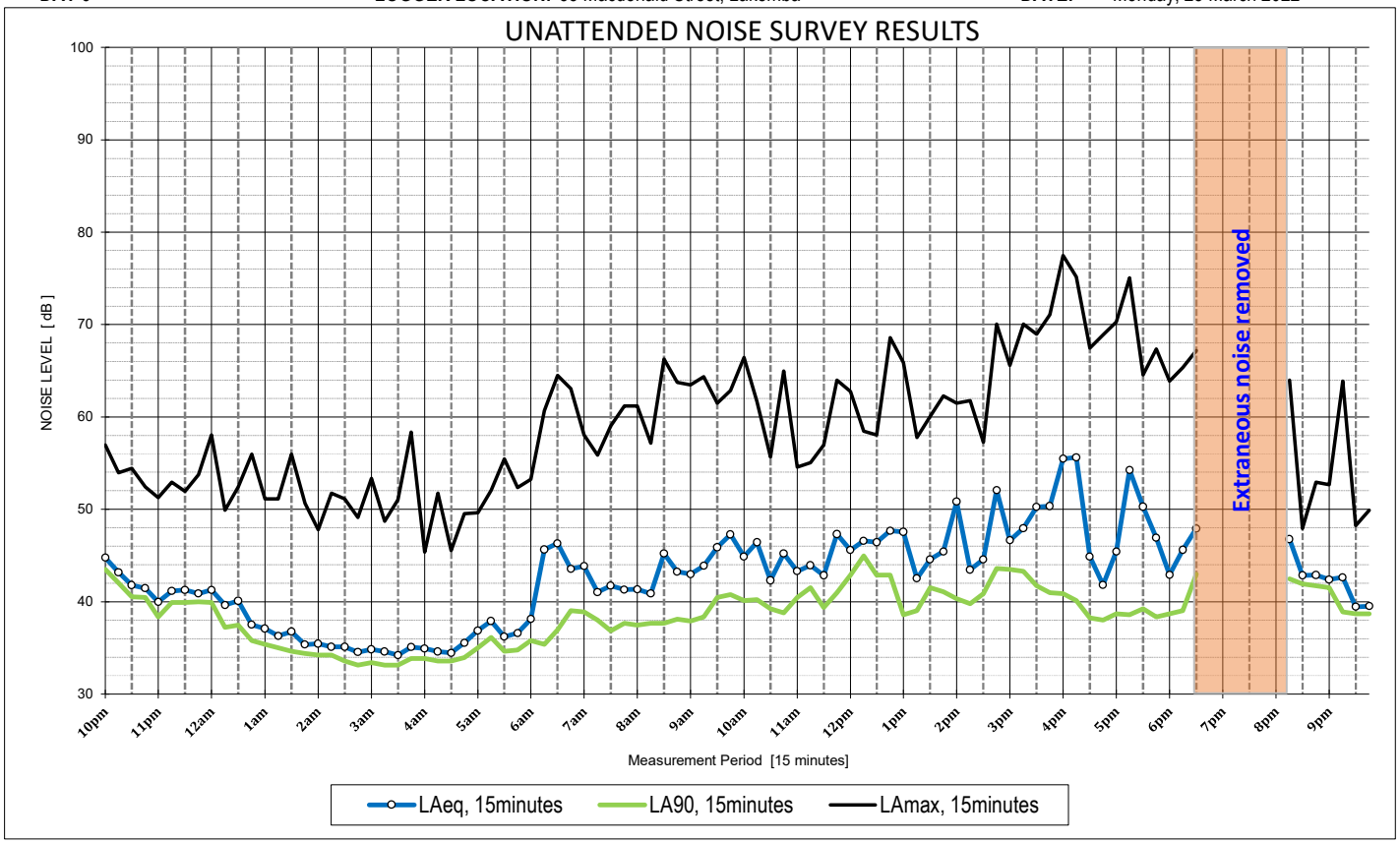
AMBIENT NOISE METRICS

LAeq Daytime	0800-1800	48	dB
LAeq Evening	1800-2200	56	dB
LAeq Night-time	2200-0700	41	dB

TRAFFIC & MISC. NOISE METRICS

LAeq 15 hours	0700-2200	49	dB
LAeq 9 hours	2200-0700	41	dB
Max LAeq 1 hour	0700-2200	49	dB
Max LAeq 1 hour	2200-0700	47	dB

DAY 6 **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **DATE:** Monday, 28 March 2022



AMBIENT BACKGROUND NOISE METRICS

Descriptor	Period	Level	Units
LA90 Daytime	0700-1800	38	dB
LA90 Evening	1800-2200	39	dB
LA90 Night-time	2200-0700	33	dB

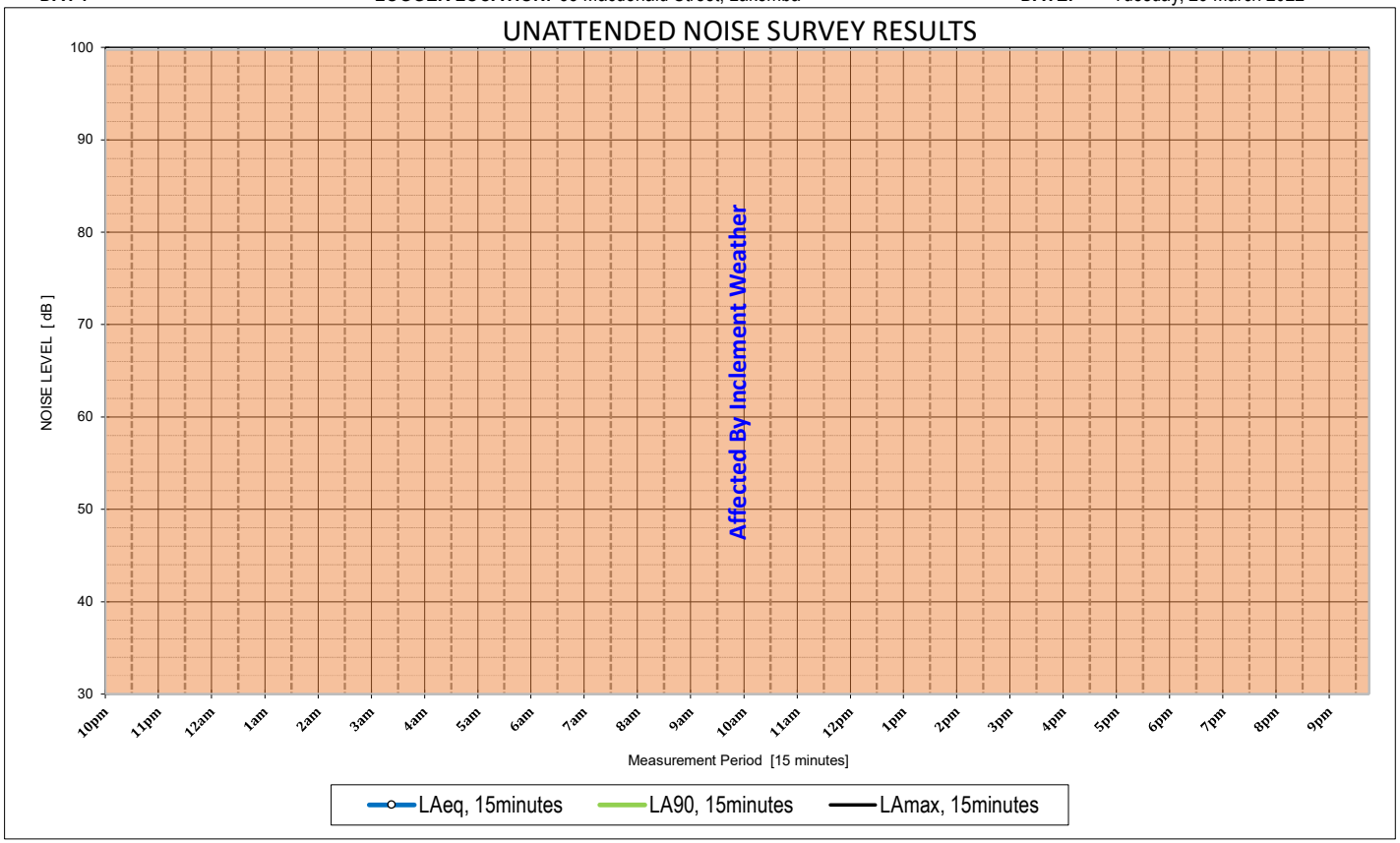
AMBIENT NOISE METRICS

LAeq Daytime	0700-1800	48	dB
LAeq Evening	1800-2200	44	dB
LAeq Night-time	2200-0700	40	dB

TRAFFIC & MISC. NOISE METRICS

LAeq 15 hours	0700-2200	47	dB
LAeq 9 hours	2200-0700	40	dB
Max LAeq 1 hour	0700-2200	50	dB
Max LAeq 1 hour	2200-0700	42	dB

DAY 7 **LOGGER LOCATION:** 55 Macdonald Street, Lakemba **DATE:** Tuesday, 29 March 2022



AMBIENT BACKGROUND NOISE METRICS

Descriptor	Period	Level	Units
LA90 Daytime	0700-1800	#NUM!	dB
LA90 Evening	1800-2200	#NUM!	dB
LA90 Night-time	2200-0700	#NUM!	dB

AMBIENT NOISE METRICS

LAeq Daytime	0700-1800	#DIV/0!	dB
LAeq Evening	1800-2200	0	dB
LAeq Night-time	2200-0700	#DIV/0!	dB

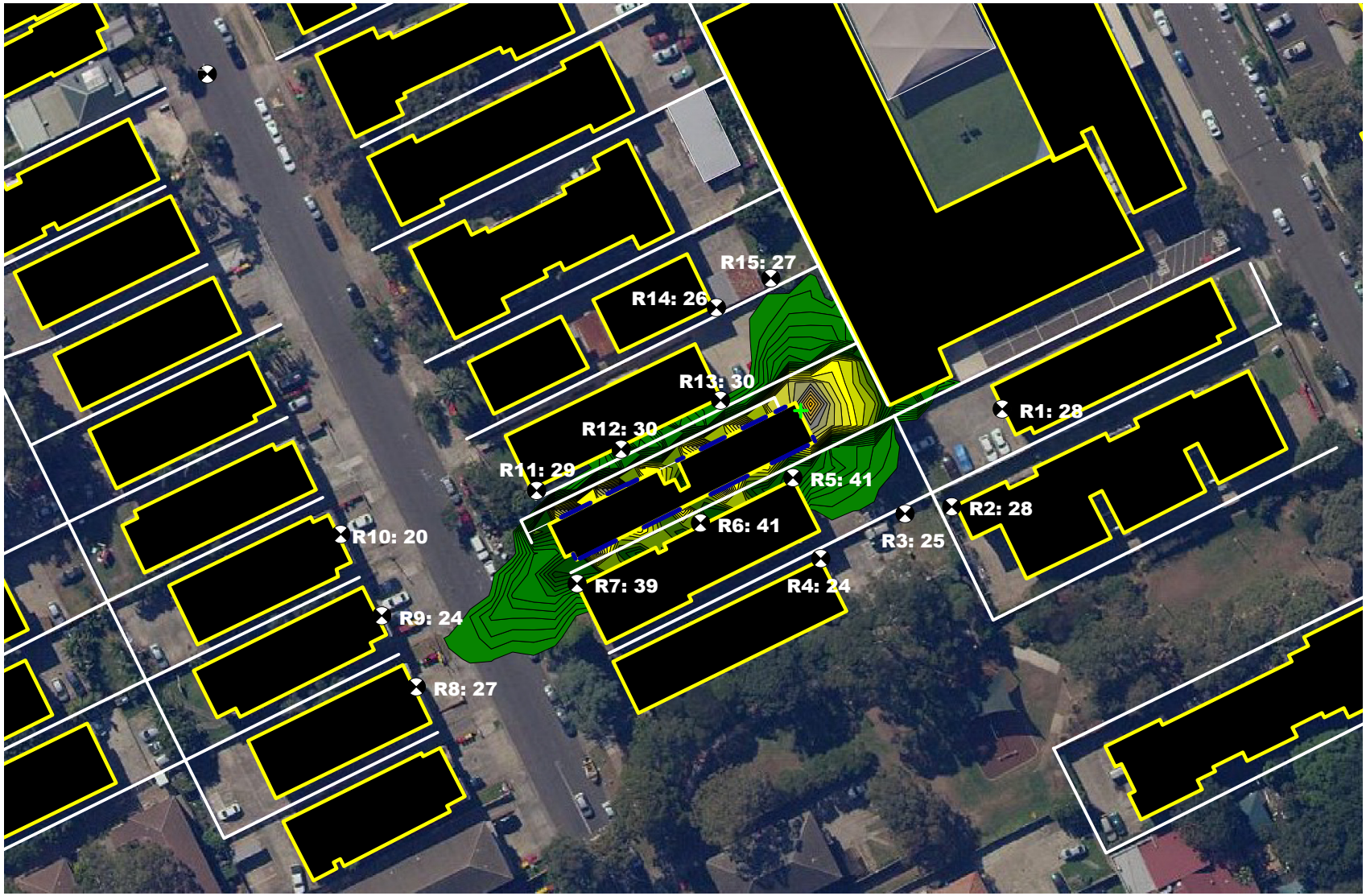
TRAFFIC & MISC. NOISE METRICS

LAeq 15 hours	0700-2200	0	dB
LAeq 9 hours	2200-0700	#DIV/0!	dB
Max LAeq 1 hour	0700-2200	0	dB
Max LAeq 1 hour	2200-0700	#NUM!	dB

APPENDIX C

APPENDIX C

APPENDIX C



Scenario 1
(Daytime)
**** NOISE SOURCES ****

~ School classrooms during class

Note:
- LAeq,15mins noise contours are at a height of 1.5 m above the first-floor level

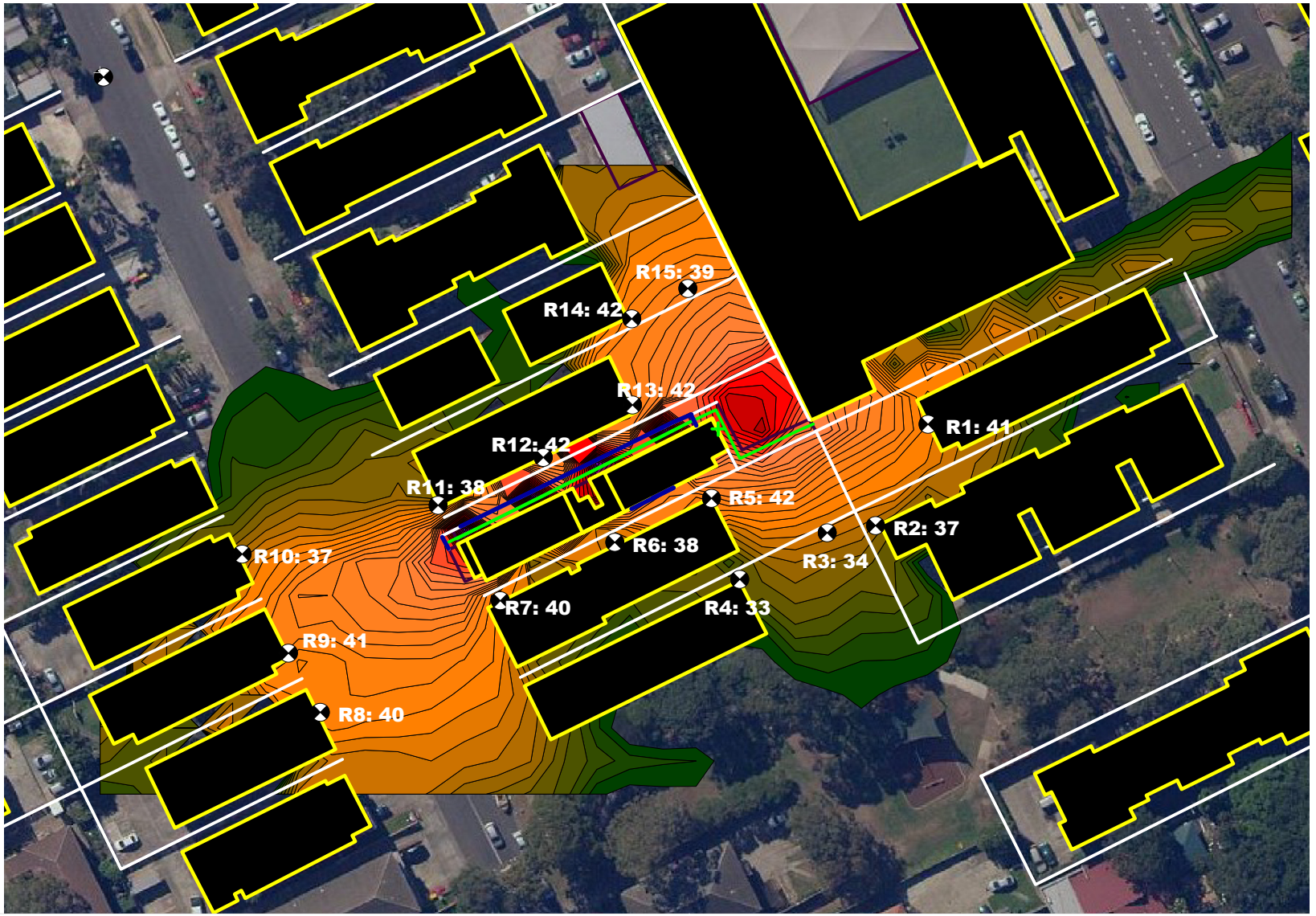
PRINT DATE: 04/04/22

Point Source
vert. Area Source
Building
Barrier
3D-Reflector
Contour Line
Receiver
Calculation Area
Vertical Grid

> -99.0 dB
> 35.0 dB
> 40.0 dB
> 45.0 dB
> 50.0 dB
> 55.0 dB
> 60.0 dB
> 65.0 dB
> 70.0 dB
> 75.0 dB
> 80.0 dB
> 85.0 dB

koikas acoustics PTY LTD
CONSULTANTS IN NOISE & VIBRATION

JOB NUMBER: 5342
CLIENT: Rissalah College
SITE ADDRESS: 55 Macdonald Street, Lakemba
ASSESSED TO: EPA NPfI
LIMITING CRITERIA: LAeq 42 dB



Scenario 2
(Daytime)
**** NOISE SOURCES ****

~ Students moving between classrooms

Note:
- LAeq,15mins noise contours are at a height of 1.5 m above the first floor level

PRINT DATE: 04/04/22

- Point Source
- Line Source
- vert. Area Source
- Building
- Barrier
- 3D-Reflector
- Ground Absorption
- Contour Line
- Receiver
- Calculation Area
- Vertical Grid

- > 30.0 dB
- > 40.0 dB
- > 50.0 dB
- > 55.0 dB
- > 60.0 dB
- > 65.0 dB
- > 70.0 dB
- > 75.0 dB
- > 80.0 dB

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CLIENT: Rissalah College
SITE ADDRESS: 55 Macdonald Street, Lakemba
ASSESSED TO: EPA NPfI
LIMITING CRITERIA: LAeq 42 dB